NAD

SERVICE MANUAL

C 272

STEREO AMPLIFIER

C 272

STEREO AMPLIFIER

SPECIFICATIONS

STEREO MODE

CONTINUOUS AVERAGE POWER OUTPUT INTO 8 OHMS OR 4 OHMS (Min. power per channel, 20 Hz – 20 kHz, both channels driven, with no more than rated distortion)		**= 150 W (21.8 dBW)**
Rated Distortion (THD 20 Hz – 20 kHz)		**= 0.03%**
Clipping power (maximum continuous power per channel).		**= 170 W**
IHF dynamic headroom at 8 ohms		**= +2.3 dB**
IHF dynamic power (Maximum short term power per channel)	8 ohms:	**= 230 W (23.6 dBW)**
	4 ohms:	**= 410 W (26.1 dBW)**
	2 ohms:	**= 520 W (27.2 dBW)**
Damping factor (ref. 8 ohms 50Hz)		**> 150**
Input Impedance		**R = 20 kohms** **C = 470 pF**
Input sensitivity (for rated output into 8 ohms)		**1.2 V± 0.1V**
Voltage gain		**29 dB**
Frequency response 20 Hz – 20 kHz		**± 0.3 dB** **- 3 dB at 3 Hz/70 kHz**
Signal / Noise ratio, A-weighted		**> 100 dB ref. 1 W** **> 120 dB ref. rated power**

BRIDGED （MONOPHONIC） MODE

CONTINUOUS AVERAGE POWER OUTPUT INTO 8 OHMS (Min. power per channel, with no more than rated distortion)		**330 W 25.2 dBW)**
IHF dynamic headroom at 8 ohms		**3 dB**
IHF dynamic power	8 ohms:	**800 W (29.0 dBW)**
IHF dynamic power	4 ohms:	**1200 W (30.8 dBW)**

DIMENSIONS AND WEIGHTS

Net Weight	**12.5 kg (27.5 lb)**
Shipping Weight	**14.2 kg (31.3 lb)**
Dimension (W × H × D)	**435 ´ 133 ´ 350 mm**

ALIGNMENT PROCEDURE (C272)

I. INITIAL ADJUSTMENT (No load connected)

A. OUTPUT OFFSET VOLTAGE

1. Connect a DC Millivoltmeter to L Channel TP2 (DC) and TP8 (GND).
2. Turn unit “ON” and adjust VR301 (100ohms) to get a reading of 0V+/-30mV.
3. Connect a DC Millivoltmeter to R Channel TP5 (DC) and TP7, then adjust VR401(100ohms) to get a reading of 0V+/-30mV reading on meter.

B. IDLING CURRENT

1. Connect a DC Millivoltmeter to L Channel TP1 (IDL) and TP3 (IDL), then adjust VR302 (500 ohms) for 6~7.5mV reading on meter.
2. Connect a DC Millivoltmeter to R Channel TP4 (IDL) and TP6 (IDL), then adjust VR402 (500 ohms) for 6~7.5mV reading on meter.

II. ISC ADJUSTMENT (WITH LOAD CONNECTED)

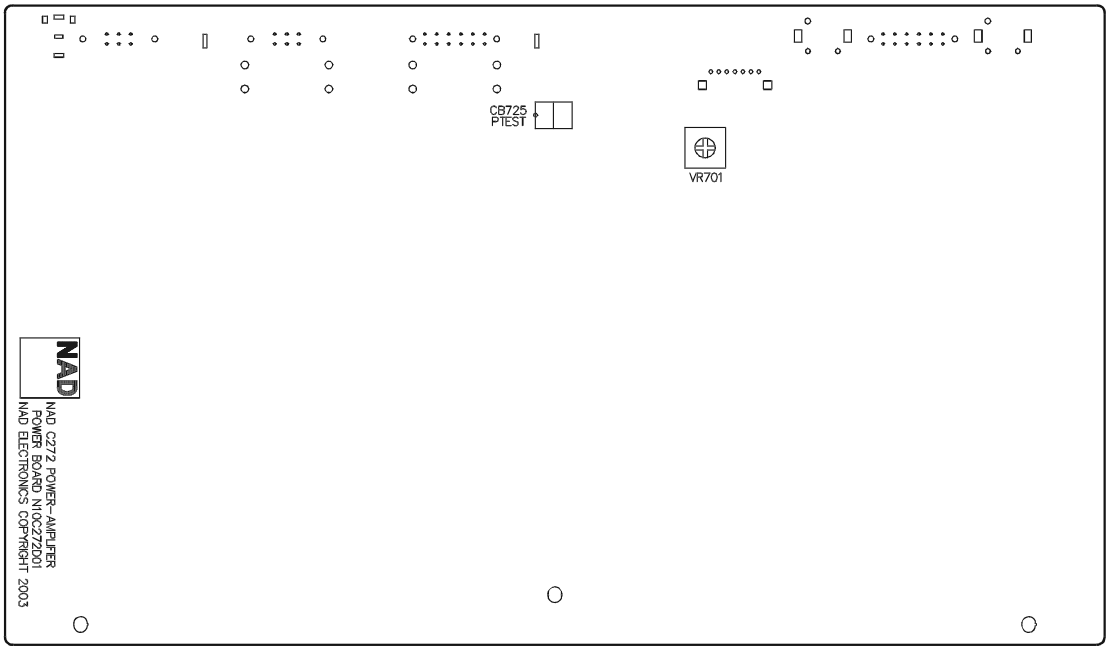
1. Connect a DC Millivoltmeter to Power Board CB725, and connect 4 ohms load to both L&R speaker output terminals. Then feed 20kHz signal to Fixed In RCA.

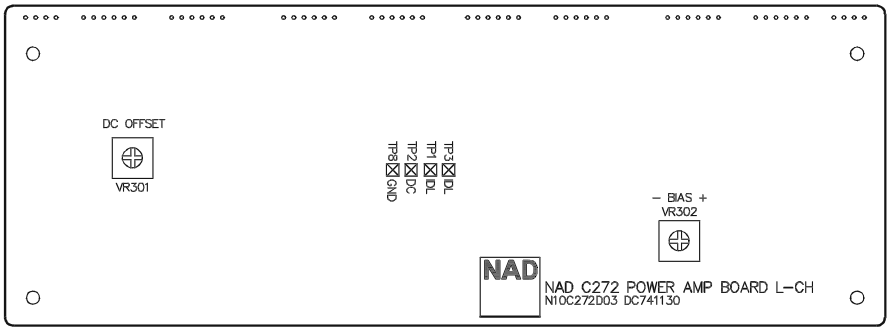
2. Turn unit ”ON” and try to get 15W on speaker output terminal. Then adjust VR701 (82kohms) to get a reading of 0V+/-10mV.

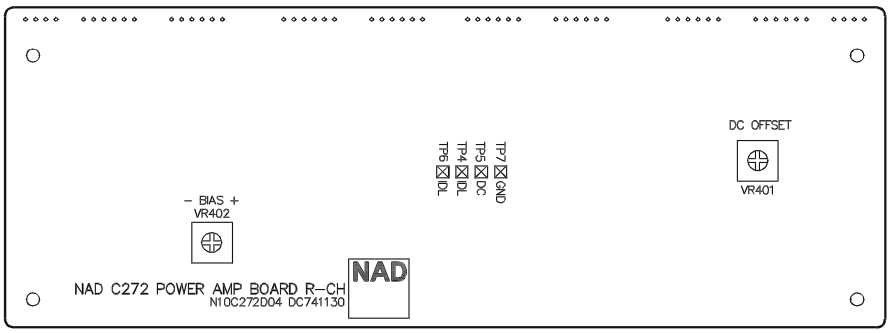
3. Change the load to 8 ohms and try to get 160W on speaker output terminals. Then adjust VR701 (82kohms) to get a reading of 1.4V+/-30mV.

III. FINAL ADJUSTMENT

Repeat procedure A and B for offset voltage and idling current alignment respectively.


CB725
PTEST
VR701
NAD
NAD C272 POWER-AMPLIFER
POWER BOARD N10C272D01
NAD ELECTRONICS COPYRIGHT 2003


DC OFFSET
VR301
TP8 GND
TP2 DC
TP1 IDL
TP3 IDL
– BIAS +
VR302
NAD
NAD C272 POWER AMP BOARD L-CH
N10C272D03 DC741130


TP6 IDL
TP4 IDL
TP5 DC
TP7 GND
DC OFFSET
VR401
– BIAS +
VR402
NAD C272 POWER AMP BOARD R-CH
N10C272D04 DC741130
NAD

C270-INPUT BUFFER

C270 STANDBY BOARD

NOTE:
1. RESISTORS ARE CARBON FILM 1/4W 5% UNLESS SPECIFIED.
   FP - FLAME PROOF 5%. FS-FUSIBLE 5%
   MF - METAL FILM 5%. CE-CERAMIC CASE 5%.
2. ALL CAPACITORS, UNLESS OTHERWISE SPECIFIED, ARE 50V, 20%
3. COMPONENTS WITH "N.L" MEANS "NOT INSERT".
4. COMPONENTS WITH " * " ARE ADJUSTABLE PARTS.
5. COMPONENTS WITH " ⚠ " ARE SAFETY CRITICAL PARTS.

REV.	ECN No.	DESCRIPTION	Date	APPRO.
		CHANGE R744 TO 100		
		ADD R799 1/4W 2K		

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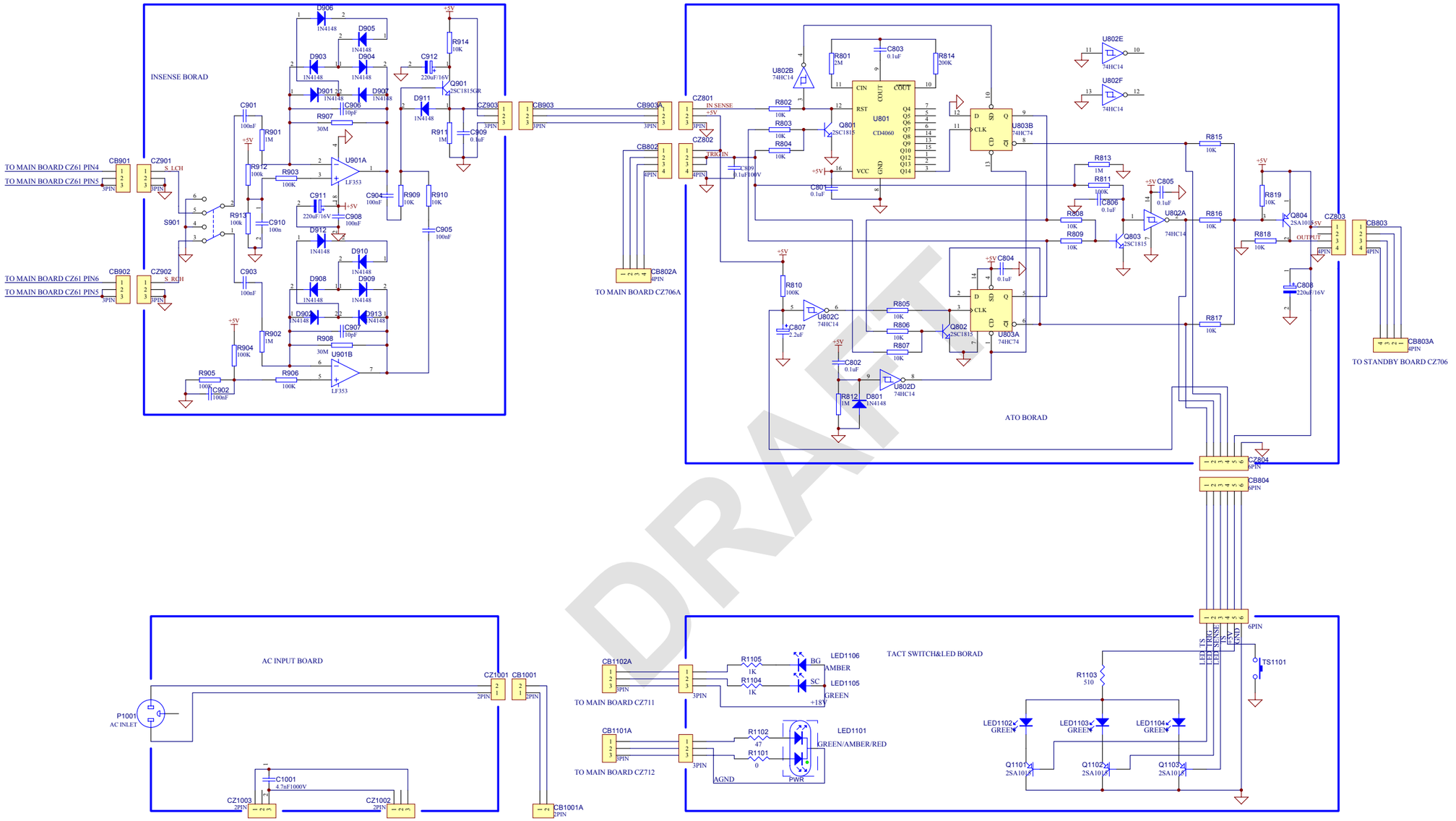
Document Number: HS4_C272_B007 V3.0-MAIN.sch			Sheet:
Project: C272			State:
Drafted by:	PL Checked by:	PTA Checked by:	Approved by:
Date:	Date:	Date:	Date:

DRAFT



DRAFT

REV.	ECN No.	DESCRIPTION	Date	APPRO.
		ADD R914,C808,C911,C912		
		PN U1 CHANGED TO U801		
		ADD 0.1uF CAP FROM TRIG IN TO GND		
V3.7	C022V1-013	R819 CHANGED TO 10K	03-12-10	

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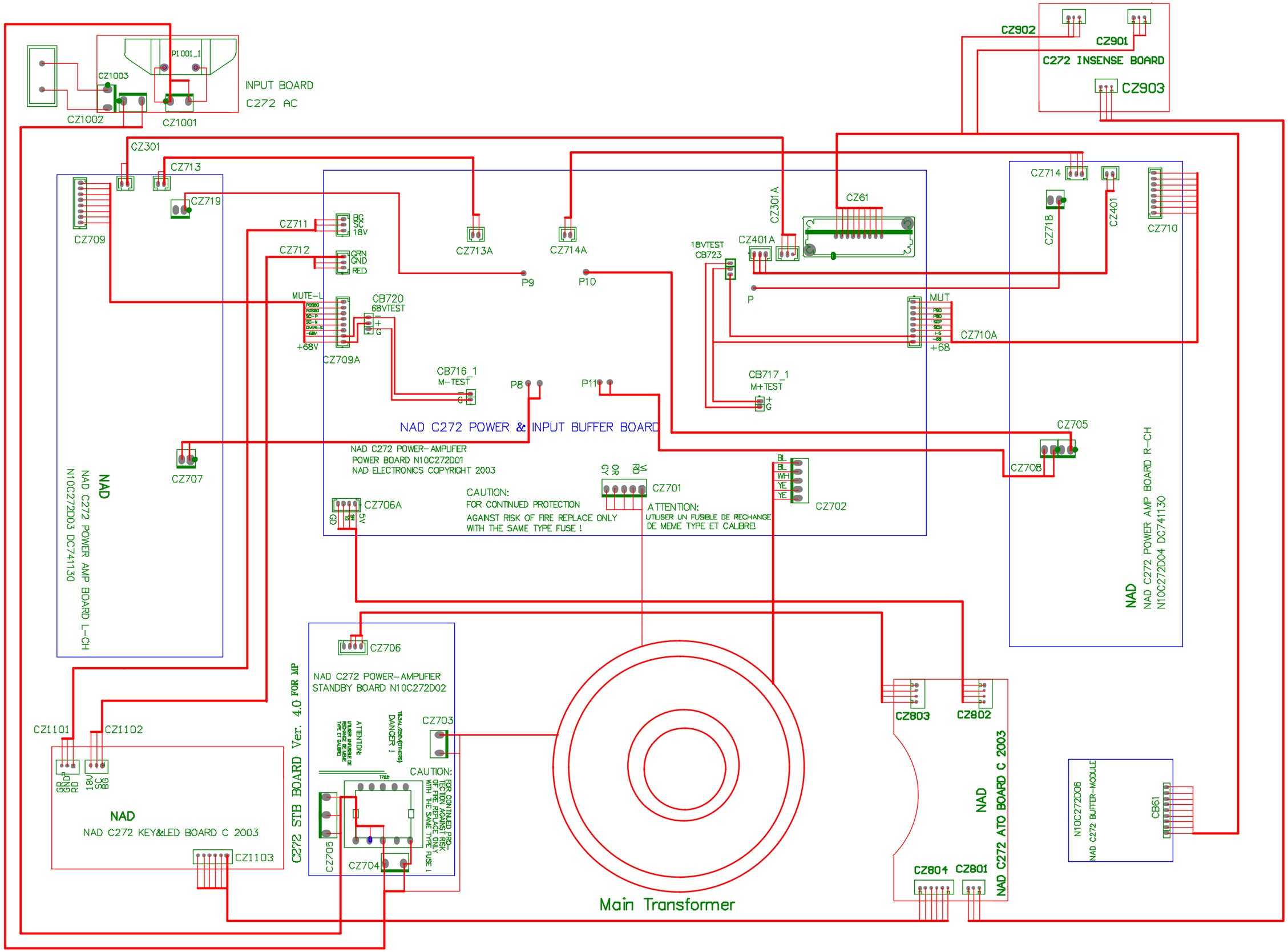
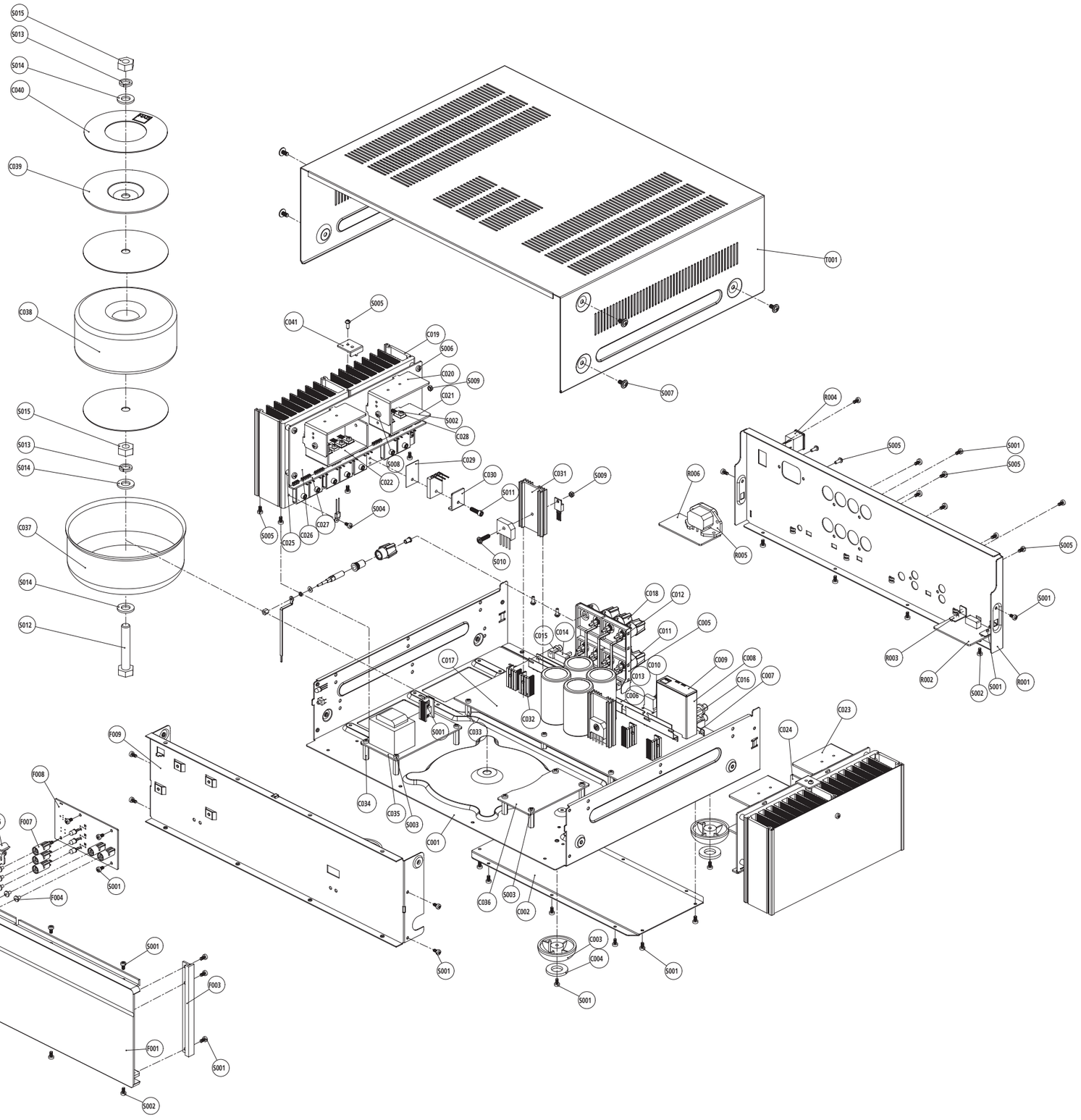
Document Number: HS4_C272_B007 V4.0-ATO.SCH			Sheet:
Project: C272			State:
Drafted by:	PL Checked by:	PTA Checked by:	Approved by:
Date:	Date:	Date:	Date:

WIRING DIAGRAM



EXPLODED VIEW



EXPLODED VIEW PARTS LIST

REF.NO	PART NO.	DESCRIPTION	Qty.
C001	66-026002-1	Chassis	1
C002	66-005004-0	Base Cover	1
C003	75-010004-1	Foot	4
C004	78-001002-0	Foot Pad	4
C005	66-005006-0	BDP Support	1
C006	69-006003-0	Copper Slot	1
C007	66-006001-0	Bus Bar	2
C008	70-002004-0	Module Support 2	1
C009	75-003004-0	Module Lid	1
C010	73-003001-0	Rotate Knob	1
C011	69-002004-0	BDP Pin	4
C012	69-005006-0	BDP Pin	4
C013	11-05202-01	Slide Swich	2
C014	11-05202-00	Slide Swich	2
C015	17-07001-00	Trigger In Socket	1
C016	17-01002-01	RCA	2
C017	16-27010-00	Main PCB	1
C018		Binding Post	8
C019	70-005005-0	Heat Sink	2
C020	70-026004-1	Heat Sink 2b	2
C021	70-026005-1	Heat Sink 1a	1
C022	70-026002-1	Heat Sink 2	2
C023	70-026001-1	Heat Sink 1b	2
C024	70-026003-1	Heat Sink 2a	1
C025	85-005001-0	PC Spacer	8
C026	16-27020-00	Amplifier PCB	2
C027	16-27040-00	Transistor PCB	2
C028	78-005002-0	Insulation Causion(Small)	8
C029	78-005005-0	Insulation Causion(Big)	16
C030	66-005009-0	Tr. Clamper	16
C031	70-004001-0	Small Heat Sink	2
C032	70-002005-0	Heat Sink	5
C033	69-005001-0	Copper Spacer	3
C034	69-006002-0	Copper Spacer	9
C035	16-27030-00	Standby PCB	1
C036	16-27080-00	Module Board	1
C037	67-005010-0	Box	1
C038	18-37371-22	Main Transformer(C version)	1
	18-37371-12	Main Transformer(AH version)	1
C039	66-005007-0	Metal Disc	1
C040	94-005004-0	Transformer Label	1
C041	66-005008-0	Clamp 2	2

REF.NO	PART NO.	DESCRIPTION	Qty.
F001	67-026001-0	Fascia	1
F002	67-018001-0	End Cap L	1
F003	67-018002-0	End Cap R	1
F004	76-003001-0	LED Lens	6
F005	77-026002-0	Power Button Bezel	1
F006	77-026001-0	Power Button	1
F007	75-005001-0	Sleeve	5
F008	16-27209-00	LED&Ttact Switch Board	1
F009	66-026001-0	Subfascia	1
R001	67-026003-0	Rear Panel (AH)	1
	67-026002-0	Rear Panel (C)	1
R002	16-27205-00	Insense Board	1
R003	11-05202-00	Slide Switch	1
R004	66-010010-0	L Type Bracket	2
R005	17-07102-00	AC Inlet	1
R006	16-27207-00	AC Input Board	1
R007	11-01101-02	Rock Swich	1
T001	67-018004-0	Top Cover	1
S001	61-023106-0	Self Taping Screw STB3x6	50
S002	61-023108-0	Self Taping Screw STB3x8	22
S003	61-023506-0	Machine Screw MB3x6	24
S004	61-023206-0	Self Taping Screw BTB3x6	4
S005	61-023208-0	Self Taping Screw BTB3x8	26
S006	61-033420-0	Self Taping Screw PTP3x20	8
S007	61-084108-0	Self Taping ScrewSTPW4x8	6
S008	61-023508-0	Machine Screw MB3x8	4
S009	62-010302-0	Nut GB6170 M3	6
S010	61-083515-0	Machine Screw MPW3x15	2
S011	61-223514-0	Hex Screw M3x14	16
S012	64-110070-0	Bolt GB5781 M10x70	1
S013	63-021030-0	Spring Washer GB93 10	2
S014	63-011020-1	Washer GB95 10	3
S015	62-011002-0	Nut GB6170 M10	2

ELECTRICAL PARTS LIST

REF. NO.	P/N	DESCRIPTION			
***Power AMP Board L Channel (*Assembled AMP PCB 01-27220-01 with heatsink)**					
AMP Raw PCB	16-27220-01	CEM-1			
TRANSISTORS					
Q305, Q309, Q326, Q316	31-01015-00	2SA1015GR	TO-92		Transistors
Q301, Q306, Q307, Q330	31-00872-00	2SA872A	TO-92		Transistors
Q302, Q303, Q304, Q329	31-01775-00	2SC1775A	TO-92		Transistors
Q308, Q312, Q325	31-01815-00	2SC1815GR	TO-92		Transistors
Q318	31-01837-00	2SA1837	TO-220		Transistors
Q310, Q313	31-01220-00	KSA1220A	TO-126		Transistors
Q311, Q314	31-02690-00	KSC2690A	TO-126		Transistors
Q315	31-02690-00	KSC2690A	TO-126		Transistors
Q317	31-04793-00	2SC4793	TO-220		Transistors
Q319, Q321, Q323, Q327	31-01943-00	2SA1943O	TO-3P		Transistors
Q320, Q322, Q324, Q328	31-05200-00	2SC5200O	TO-3P		Transistors
DIODES					
D301, D302	33-11800-00	18V/0.5W			Zener Diodes
D303, D304, D309	33-44148-02	1N4148			SW Diodes
D305, D306	33-44148-03	1N4148			SW Diodes
D307, D308	33-40021-00	1SS88(or BAV21 [BV>200V])			SW Diode
ICS					
IC301, IC302	03-00431-00	TL431	TO-92		Regulator
CAPACTORS					
C305, C307	05-22052-00	22pF	500V	±20%	Ceramic Disk
C308	05-10151-01	100pF	50V	±20%	Ceramic Disk
C302	05-22151-01	220pF	50V	±20%	Ceramic Disk
C313, C314	05-47152-00	470pF	500V	±20%	Ceramic Disk
C320	25-22312-01	22nF	100V	±10%	Metallized Polyster Film
C309, C310, C315, C316, C317, C318, C323	25-10412-02	0.1uF	100V	±10%	Metallized Polyster Film
C306	06-22260-00	2200uF	6.3V	±20%	Electrolytic
C301, C303, C304	06-10021-01	10uF	25V	±20%	Electrolytic
C312, C311	06-10121-00	100uF	25V	±20%	Electrolytic
C321	06-10051-00	10uF	50V	±20%	Electrolytic
C319, C322	06-10012-00	10uF	100V	±20%	Electrolytic
RESISTOR					
R367	07-70471-08	t=80° C			Posistor
R366	07-70471-09	t=90° C			Posistor
R331, R339	07-50479-00	4.7ohms	1/4W	±5%	Fusible
R350, R351, R352, R353, R354, R355, R368, R369	07-50208-01	0.2ohms	1W	±5%	Fusible
R359	07-50100-01	10ohms	1W	±5%	Fusible
R337, R329	07-50101-02	100ohms	1W	±5%	Fusible
R325	07-10101-00	100ohms	1/6W	±5%	Carbon Film
R371	07-10222-00	2.2kohms	1/6W	±5%	Carbon Film
R313	07-10393-00	39kohms	1/6W	±5%	Carbon Film
R324	07-10104-00	100kohms	1/6W	±5%	Carbon Film
R308, R320, R336, R340	07-10330-10	33ohms	1/4W	±5%	Carbon Film
R304, R306, R312, R314	07-10101-10	100ohms	1/4W	±5%	Carbon Film
R370	07-10101-10	100ohms	1/4W	±5%	Carbon Film
R347	07-10221-10	220ohms	1/4W	±5%	Carbon Film
R346	07-10821-10	820ohms	1/4W	±5%	Carbon Film
R311, R315, R361	07-10102-10	1kohms	1/4W	±5%	Carbon Film
R345	07-10122-10	1.2kohms	1/4W	±5%	Carbon Film
R364	07-10682-10	6.8kohms	1/4W	±5%	Carbon Film
R310, R316, R333, R342, R343, R335	07-10103-10	10kohms	1/4W	±5%	Carbon Film
R362	07-10153-10	15kohms	1/4W	±5%	Carbon Film
R302, R363, R365	07-10223-10	22kohms	1/4W	±5%	Carbon Film
R305, R327	07-10393-10	39kohms	1/4W	±5%	Carbon Film
R326	07-10104-10	100kohms	1/4W	±5%	Carbon Film
R303	07-20101-00	100ohms	1/6W	±5%	Metal Film
R301	07-20471-00	470ohms	1/6W	±5%	Metal Film
R307	07-29100-00	910ohms	1/6W	±1%	Metal Film

ELECTRICAL PARTS LIST

REF. NO.	P/N	DESCRIPTION			
R328	07-20101-10	100ohms	1/4W	±5%	Metal Film
R309, R323	07-21000-10	100ohms	1/4W	±1%	Metal Film
R321	07-21001-10	1kohms	1/4W	±1%	Metal Film
R358	07-20101-21	100ohms	0.5W	±5%	Metal Film
R317	07-21500-10	150ohms	1/4W	±1%	Metal Film
R318	07-24702-10	47kohms	1/4W	±1%	Metal Film
R322	07-29101-21	9.1kohms	0.5W	±1%	Metal Film
R319	07-21002-20	10kohms	0.5W	±1%	Metal Film
R330, R338	07-30339-01	3.3ohms	1W	±5%	Metal Oxdized Film
R348, R349	07-30750-01	75ohms	1W	±5%	Metal Oxdized Film
R332, R341	07-30511-01	510ohms	1W	±5%	Metal Oxdized Film
R360	07-30339-04	3.3ohms	1W	±5%	Metal Oxdized Film
R334, R344	07-30222-03	2.2kohms	3W	±5%	Metal Oxdized Film
R356, R357	07-40507-05	0.05ohms	5W	±10%	Ceramic
INDUCTORS					
L303	08-01010-00	1uH	10%		Inductor
L301, L302	08-02100-00	10uH	10%		Inductor
POT					
VR301	09-02181-00	180ohms			Semi-POT
VR302	09-02501-00	500ohms			Semi-POT
***Power AMP Board R Channel (*Assembled AMP PCB 01-27220-02 with heatsink)**					
TRANSISTORS					
Q405, Q409, Q416, Q426	31-01015-00	2SA1015GR	TO-92		Transistor
Q401, Q406, Q407, Q430	31-00872-00	2SA872A	TO-92		Transistor
Q402, Q403, Q404, Q429	31-01775-00	2SC1775A	TO-92		Transistor
Q418	31-01837-00	2SA1837	TO-220		Transistor
Q431	31-02878-00	2SC2878A	TO-92		Transistor
Q408, Q412, Q425	31-01815-00	2SC1815GR	TO-92		Transistor
Q410, Q413	31-01220-00	KSA1220A	TO-126		Transistor
Q411, Q414	31-02690-00	KSC2690A	TO-126		Transistor
Q415	31-02690-00	KSC2690A	TO-126		Transistor
Q417	31-04793-00	2SC4793	TO-220		Transistor
Q419, Q421, Q423, Q427	31-01943-00	2SA1943O	TO-3P		Transistor
Q420, Q422, Q424, Q428	31-05200-00	2SC5200O	TO-3P		Transistor
DIODES					
D401, D402	33-11800-00	18V	0.5W		Zener Diode
D403, D404, D409	33-44148-02	1N4148			Switch Diode
D405, D406	33-44148-03	1N4148			Switch Diode
D407, D408	33-40021-00	1SS88(or BAV21 [BV>200V])			Switch Diode
ICS					
IC401, IC402	03-00431-00	TL431	TO-92		Regulator
CAPACTORS					
C408	05-10151-01	100pF	50V	±20%	Ceramic Disk
C405, C407	05-22052-00	22pF	500V	±20%	Ceramic Disk
C402	05-22151-01	220pF	50V	±20%	Ceramic Disk
C413, C414	05-47152-00	470pF	500V	±20%	Ceramic Disk
C420	25-22312-01	22nF	100V	±10%	Metallized Polyster Film
C421	06-10051-00	10uF	50V	±20%	ELECT
C409, C410, C415, C416, C417, C418, C423	25-10412-02	0.1uF	100V	±10%	Metallized Polyster Film
C411	06-10121-00	100uF	25V	±20%	Electrolytic
C412	06-10121-00	100uF	25V	±20%	Electrolytic
C401, C403, C404	06-10021-01	10uF	25V	±20%	Electrolytic
C406	06-22260-00	2200uF	6.3V	±20%	Electrolytic
C419, C422	06-10012-00	10uF	100V	±20%	Electrolytic
RESISTOR					
R467	07-70471-08	t=80° C			Posistor
R466	07-70471-09	t=90° C			Posistor
R431, R439	07-50479-00	4.7ohms	1/4W	±5%	Fusible
R450, R451, R452, R453, R454, R455, R468, R469	07-50208-01	0.2ohms	1W	±5%	Fusible
R459	07-50100-01	10ohms	1W	±5%	Fusible
R437, R429	07-50101-02	100ohms	1W	±5%	Fusible
R425	07-10101-00	100ohms	1/6W	±5%	Carbon Film

ELECTRICAL PARTS LIST

REF. NO.	P/N	DESCRIPTION			
R471	07-10222-00	2.2kohms	1/6W	±5%	Carbon Film
R413	07-10393-00	39kohms	1/6W	±5%	Carbon Film
R424	07-10104-00	100kohms	1/6W	±5%	Carbon Film
R408, R420, R436, R440	07-10330-10	33ohms	1/4W	±5%	Carbon Film
R404, R406, R412, R414, R470	07-10101-10	100ohms	1/4W	±5%	Carbon Film
R447	07-10221-10	220ohms	1/4W	±5%	Carbon Film
R446	07-10821-10	820ohms	1/4W	±5%	Carbon Film
R445	07-10122-10	1.2kohms	1/4W	±5%	Carbon Film
R411, R415, R461	07-10102-10	1kohms	1/4W	±5%	Carbon Film
R464	07-10682-10	6.8kohms	1/4W	±5%	Carbon Film
R410, R416, R433, R442, R443, R435	07-10103-10	10kohms	1/4W	±5%	Carbon Film
R462	07-10153-10	15kohms	1/4W	±5%	Carbon Film
R402, R463, R465	07-10223-10	22kohms	1/4W	±5%	Carbon Film
R405, R427	07-10393-10	39kohms	1/4W	±5%	Carbon Film
R426	07-10104-10	100kohms	1/4W	±5%	Carbon Film
R403	07-20101-00	100ohms	1/6W	±5%	Metal Film
R401	07-20471-00	470ohms	1/6W	±5%	Metal Film
R407	07-29100-00	910ohms	1/6W	±1%	Metal Film
R428	07-20101-10	100ohms	1/4W	±5%	Metal Film
R409, R423	07-21000-10	100ohms	1/4W	±1%	Metal Film
R417	07-21500-10	150ohms	1/4W	±1%	Metal Film
R421	07-21001-10	1kohms	1/4W	±1%	Metal Film
R418	07-24702-10	47kohms	1/4W	±1%	Metal Film
R458, R472	07-28201-20	8.2kohms	0.5W	±1%	Metal Film
R422	07-29101-21	9.1kohms	0.5W	±1%	Metal Film
R419	07-21002-20	10kohms	0.5W	±1%	Metal Film
R430, R438, R460	07-30339-01	3.3ohms	1W	±5%	Metal Oxdiode Film
R448, R449	07-30750-01	75ohms	1W	±5%	Metal Oxdiode Film
R432, R441	07-30511-01	510ohms	1W	±5%	Metal Oxdiode Film
R434, R444	07-30222-03	2.2kohms	3W	±5%	Metal Oxdiode Film
R456, R457	07-40507-05	0.05ohms	5W	±10%	Ceramic
INDUCTORS					
L403	08-01010-00	1uH	10%		Inductor
L401, L402	08-02100-00	10uH	10%		Inductor
POT					
VR401	09-02181-00	180ohms			Semi-POT
VR402	09-02501-00	500ohms			Semi-POT
Power Board					
Power Raw PCB	16-27210-01				
Assembled Power PCB	01-27210-01				
TRANSISTORS					
Q702, Q704, Q706, Q707, Q715	31-01015-00	2SA1015GR	TO-92		Transistors
Q712	31-00872-00	2SA872A	TO-92		Transistors
Q710, Q711	31-01775-00	2SC1775A	TO-92		Transistors
Q701, Q703, Q705, Q713, Q714, Q716, Q717, Q718	31-01815-00	2SC1815GR	TO-92		Transistors
Q709	31-01220-00	KSA1220A	TO-126		Transistors
Q708	31-02690-00	KSC2690A	TO-126		Transistors
DIODES					
D703, D704, D705, D706, D710, D712, D713, D719, D720, D721, D722	33-44148-02	1N4148			Switch Diode
D707, D708, D709, D711, D723, D724	33-44148-03	1N4148			Switch Diode
D716	33-44148-04	1N4148			Switch Diode
D702	33-25401-00	1N5401			Switch Diode
D718	33-11000-00	10V	0.5W		Zener Diode
D714, D715	33-12400-00	24V	0.5W		Zener Diode
B701, B702	33-31042-00	KBU1004			Rectifier Bridge
B703, B704	33-30142-00	DB104			Rectifier Bridge

ELECTRICAL PARTS LIST

REF. NO.	P/N	DESCRIPTION			
TC701, TC702	33-60116-00	TIC116D/BT151-500R	TO-220		Thyristor
ICS					
IC702	03-00317-00	LM317M	TO-220		Regulator
IC703	03-00337-00	LM337M	TO-220		Regulator
IC704	03-00082-00	TL082CP/D	DIP8		Dual OPAMP
IC705	03-01237-00	upc1237HA	SIP8-IC		Protection IC
CAPACTORS					
C730, C731	05-47051-02	47pF	50V	±20%	Ceramic Disk
C101, C102, C201, C202	05-10151-01	100pF	50V	±20%	Ceramic Disk
C761, C762	05-22251-00	2n2	50V	±20%	Ceramic Disk
C757	24-22461-00	220nF	63V	±20%	Ceramic Disk
C706, C727	24-10461-00	0.1uF	63V	±20%	Ceramic Disk
C103, C203	25-10361-04	10nF	63V	±10%	Metallized Polyster Film
C704, C721, C722, C734, C735, C740, C741, C746, C747, C759, C760	25-22312-01	22nF	100V	±10%	Metallized Polyster Film
C702, C703, C705, C711, C712, C713, C714	25-22322-00	22nF	250V	±10%	Metallized Polyster Film
C748, C749	06-10951-00	1uF	50V	±20%	Electrolytic Capacitor
C733, C756	06-47912-00	4u7	100V	±20%	Electrolytic Capacitor
C105, C205, C750, C751, C752, C753, C763, C764, C767	06-10021-01	10uF	25V	±20%	Electrolytic Capacitor
C742, C743, C754	06-10051-00	10uF	50V	±20%	Electrolytic Capacitor
C732	06-10012-00	10uF	100V	±20%	Electrolytic Capacitor
C744, C745, C765	06-22051-00	22uF	50V	±20%	Electrolytic Capacitor
C736, C737	06-22012-00	22uF	100V	±20%	Electrolytic Capacitor
C104, C204	06-10160-02	100uF	6.3V	±20%	Electrolytic Capacitor
C728, C729	06-10121-00	100uF	25V	±20%	Electrolytic Capacitor
C758	06-33111-01	330uF	16V	±20%	Electrolytic Capacitor
C755	06-47051-00	47uF	50V	±20%	Electrolytic Capacitor
C725, C726	06-47012-00	47uF	100V	±20%	Electrolytic Capacitor
C723, C724	06-10212-02	1000uF	100V	±20%	Electrolytic Capacitor
C738, C739	06-22251-00	2200uF	50V	±20%	Electrolytic Capacitor
C715, C716, C717, C718	06-10381-01	10000uF	80V	±20%	Electrolytic Capacitor
RESISTOR					
R799	07-90222-01	2.2kohms	0805	5%	Chip Resistor
R723, R724	07-50330-02	33ohms	1/2W	±5%	Fusible
R701, R702, R703, R704	07-50109-00	1ohms	1W	±5%	Fusible
R738, R739	07-50201-01	200ohms	1W	±5%	Fusible
R744	07-10101-00	100ohms	1/6W	±5%	Carbon Film
R793	07-10561-00	560ohms	1/6W	±5%	Carbon Film
R754	07-10102-00	1kohms	1/6W	±5%	Carbon Film
R792	07-10202-00	2kohms	1/6W	±5%	Carbon Film
R774, R778	07-10472-00	4.7kohms	1/6W	±5%	Carbon Film
R777	07-10103-00	10kohms	1/6W	±5%	Carbon Film
R771, R760	07-10223-00	22kohms	1/6W	±5%	Carbon Film
R791	07-10104-00	100kohms	1/6W	±5%	Carbon Film
R747	07-10474-00	470kohms	1/6W	±5%	Carbon Film
R709, R710, R720, R729	07-10101-10	100ohms	1/4W	±5%	Carbon Film
R775	07-10561-10	560ohms	1/4W	±5%	Carbon Film
R707, R708, R711, R712, R721, R722, R725, R726, R727, R730, R732, R733, R755, R780, R781, R728, R784, R785	07-10102-10	1kohms	1/4W	±5%	Carbon Film
R731	07-10182-10	1.8kohms	1/4W	±5%	Carbon Film
R790	07-10222-10	2.2kohms	1/4W	±5%	Carbon Film
R767	07-10562-10	5.6kohms	1/4W	±5%	Carbon Film
R749, R750, R763, R764, R765, R768, R779, R797	07-10103-10	10kohms	1/4W	±5%	Carbon Film
R713, R714, R715, R761, R762, R770, R786	07-10223-10	22kohms	1/4W	±5%	Carbon Film
R769, R772, R773	07-10563-10	56kohms	1/4W	±5%	Carbon Film

ELECTRICAL PARTS LIST

REF. NO.	P/N	DESCRIPTION			
R748	07-10104-10	100kohms	1/4W	±5%	Carbon Film
R719	07-10224-10	220kohms	1/4W	±5%	Carbon Film
R751, R752	07-10105-10	1Mohms	1/4W	±5%	Carbon Film
R102, R104, R202, R204	07-10225-00	2.2Mohms	1/6W	±5%	Carbon Film
R101, R201	07-20221-00	220ohms	1/6W	±5%	Metal Film
R745	07-20273-00	27kohms	1/6W	±5%	Metal Film
R756	07-23903-00	390kohms	1/6W	±1%	Metal Film
R717	07-21000-10	100ohms	1/4W	±1%	Metal Film
R103, R203	07-20221-12	220ohms	1/4W	±5%	Metal Film
R742, R743	07-22490-10	249ohms	1/4W	±1%	Metal Film
R735	07-23301-10	3.3kohms	1/4W	±1%	Metal Film
R740, R741	07-23321-10	3.32kohms	1/4W	±1%	Metal Film
R718, R734	07-29101-10	9.1kohms	1/4W	±1%	Metal Film
R736, R737	07-22202-10	22kohms	1/4W	±1%	Metal Film
R782, R783	07-22502-12	25kohms	1/4W	±1%	Metal Film
R757	07-26202-10	62kohms	1/4W	±1%	Metal Film
R759	07-29102-10	91kohms	1/4W	±1%	Metal Film
R753, R758, R788	07-21003-10	100kohms	1/4W	±1%	Metal Film
R746, R789	07-22703-10	270kohms	1/4W	±1%	Metal Film
R716	07-40257-03	0.025ohms	3W	±10%	Cement
R766	07-30221-03	220ohms	2W	±5%	Metal Oxidized Film
TRANSFORMERS					
T701	18-37371-22				Main Transformer (C Version)
T701	18-37371-12				Main Transformer (AH Version)
POTS					
VR701	09-02823-00	82kohms			Semi-POT
RV1	09-02102-00	1kA			POT
SWITCHES					
SW702, SW703	11-05202-00				Slide Switches
SW704, SW705	11-05202-01				Slide Switches
RELAYS					
RL702, RL703	12-03101-04	JQX-115F/036/1HS1			Speaker Relays
BUFFER MODULE BOARD					
Module Raw PCB	16-27080-00	CEM-1			
Assembled Module PCB	01-27080-00				
TRANSISTORS					
Q61, Q62	31-00369-00	2SK369GR	TO-92		Transistor
	or 31-00170-00	2SK170-BL	TO-92		Transistor
Q64, Q66	31-00647-00	2SB647A	TO-126		Transistor
Q63, Q65	31-00970-00	2SA970GR	TO-92		Transistor
Q67, Q68	31-00667-00	2SD667A	TO-126		Transistor
DIODES					
D61, D62, D63, D64	33-44148-02	1N4148			SW Diodes
CAPACTORS					
C63, C64	05-39051-00	39pF	50V	±20%	Ceramic Disk
C69, C610	05-47051-00	47pF	50V	±20%	Ceramic Disk
C61, C62	05-10151-00	100pF	50V	±20%	Ceramic Disk
C65, C66, C67, C68	24-10461-00	0.1uF	63V	±20%	Ceramic Disk
C612, C613	25-22461-00	0.22uF	63V	±10%	Metallized Polyster Film
RESISTOR					
R617, R618	07-10470-00	47ohms	1/6W	±5%	Carbon Film
R613, R614	07-10103-00	10kohms	1/6W	±5%	Carbon Film
R619, R620	07-20100-00	10ohms	1/6W	±5%	Metal Film
R69, R610	07-20101-00	100ohms	1/6W	±5%	Metal Film
R61, R62	07-20221-00	220ohms	1/6W	±5%	Metal Film
R63, R64	07-20225-00	2.2Mohms	1/6W	±5%	Metal Film
R67, R68, R611, R612	07-20102-00	1kohms	1/6W	±5%	Metal Film
STANDBY BOARD					
Standby Raw PCB	16-27030-00				CEM-1
Assembled Standby PCB	01-27030-00				
TRANSISTORS					
Q701	31-01815-00	2SC1815GR	TO-92		Transistors

ELECTRICAL PARTS LIST

REF. NO.	P/N	DESCRIPTION			
DIODES					
D701	33-44148-02	1N4148			SW Diodes
B705	33-30142-00	DB104			Rectifier Bridge
IC					
IC701	03-07805-00	7805	TO-220		Regulator
CAPACTORS					
C766	05-47242-00	4n7	400V	±20%	Ceramic Disk
C707	24-10461-00	0.1uF	63V	±20%	Ceramic Disk
C710	24-10461-00	0.1uF	63V	±20%	Ceramic Disk
C708	06-10211-00	1000uF	16V	±20%	Electrolytic Capacitor
C709	06-10021-01	10uF	25V	±20%	Electrolytic Capacitor
RESISTOR					
R705	07-10222-10	2.2kohms	1/4W	±5%	Carbon Film
R706	07-10103-10	10kohms	1/4W	±5%	Carbon Film
TRANSFORMER					
T702	18-27030-00	TD030-E101B			Standby Transformer
RELAY					
RL701	12-02101-01	VS5MB-NR or DH1U5VDC			Standby Relay
POWER TRANSISTOR BOARD					
Transistor Raw PCB	16-27040-00				CEM-1
Assembled Raw PCB	01-27040-00				
MISCS					
PJ701	17-07001-00	12V Trigger In			Trigger In Socket
RCA1, RCA2	17-01002-01	With Grounding Tap			RCA, 2 holes,
AC Cord	15-10250-00				C Version
AC Cord	15-10125-00				AH Version
AC INPUT BOARD					
AC Input Raw PCB	16-27207-00	CEM-1			
Assembled AC Input PCB	01-27207-00				
P1001	17-07102-00	GSP1.9500.1/R-30190		2 Pin	AC Inlet
CZ1001, CZ1002, CZ1003	13-23903-01	VH 3.96A-3A, without middle pin			Socket
C1001	05-47242-00	4N7, CT81	400V	20%	Hi-Pot Capacitor
	11-01101-02	BR-12A-11S			Rock Switch
ATO BOARD					
ATO Logic Raw PCB	16-27206-01	CEM-1			
Assembled ATO Logic PCB	01-27206-01	CEM-1			
DIODE					
D801	33-44148-01	1N4148			Switch Diode
TRANSISTOR					
Q801, Q802, Q803	31-01815-00	2SC1815GR	TO92		Transistor
Q804	31-01015-00	2SA1015GR	TO92		Transistor
IC					
U802	03-07414-01	74HC14	DIP14		Logic IC
U803	03-07474-01	74HC74	DIP14		Logic IC
U801	03-04060-00	CD4060BCN	DIP16		Logic IC
CAPACITORS					
C809	26-10451-10	0603, 100nF, X7R	50V	±10%	Chip Capacitor
C801, C802, C803, C804, C805, C806	24-10461-00	0.1uF	63V	20%	Monolythic
C807	06-22911-01	2.2uF, CD110	16V	20%	Electrolytic Cap
C808	06-22111-09	220uF, CD110	16V	20%	Electrolytic Cap

ELECTRICAL PARTS LIST

REF. NO.	P/N	DESCRIPTION			
RESISTOR					
R815, R816, R817, R819	07-10103-13	10kohms	1/4W	5%	Carbon Film Resistor
R802, R803, R804, R805, R806, R807, R808, R809, R818	07-10103-10	10kohms	1/4W	5%	Carbon Film Resistor
R810, R811	07-10104-10	100kohms	1/4W	5%	Carbon Film Resistor
R814	07-10204-10	200kohms	1/4W	5%	Carbon Film Resistor
R812, R813	07-10105-10	1Mohms	1/4W	5%	Carbon Film Resistor
R801	07-10205-10	2Mohms	1/4W	5%	Carbon Film Resistor
SENSE BOARD					
Sense Raw PCB	16-27205-00	CEM-1			
Assembled Sense PCB	01-27205-00	CEM-1			
DIODE					
D901, D902, D903, D904, D905, D906, D907, D908, D909, D910, D911, D912, D913	33-44148-01	1N4148			Switch Diode
TRANSISTOR					
Q901	31-01815-00	2SC1815GR	TO92		Transistor
IC					
U901	03-00353-00	LF353N	DIP8		OPAMP
CAPACITORS					
C906, C907	05-10052-00	10pF, CT1	500V	20%	Ceramic Capacitor
C901, C902, C903, C904, C905, C908, C909, C910	24-10461-00	0.1uF	63V	20%	Monolithic Capacitor
C911, C912	06-22111-09	220uF	16V	20%	Electrolytic Capacitor
RESISTOR					
R909, R910, R914	07-10103-00	10kohms	1/6W	5%	Carbon Film Resistor
R903, R904, R905, R906, R912, R913	07-10104-00	100kohms	1/6W	5%	Carbon Film Resistor
R901, R902, R911	07-10105-00	1Mohms	1/6W	5%	Carbon Film Resistor
R907, R908	07-10306-00	30Mohms	1/6W	5%	Carbon Film Resistor
SWITCH					
S901	11-05202-00	SSSU122NB1			Slide Switch
LED&TSW BOARD					
LED&Tact Switch Raw PCB	16-27209-00	CEM-1			
Assembled Led&Tact Switch PCB	01-27209-00	CEM-1			
LED					
LED1101	33-50525-00				Dual Color
LED1102, LED1103, LED1104, LED1105	33-50550-00				Green
LED1106	33-50540-00				Amber
TRANSISTOR					
Q1101, Q1102, Q1103	31-01015-00	2SA1015GR	TO92		Transistor
RESISTOR					
R1102	07-10470-10	47ohms	1/4W	5%	Cabbon Film Resistor
R1103	07-10511-10	510ohms	1/4W	5%	Cabbon Film Resistor
R1104, R1105	07-10102-10	1kohms	1/4W	5%	Cabbon Film Resistor
SWITCH					
TS1101	11-04101-00	IT-1102D-1160			Tact Switch
FUSE					
F701	20-12402-01	T4.0AL/250V			Fuse C Version
F701	20-12632-01	T6.3AL/250V			Fuse AH Version
Fuse Holder	20-20000-00	HF-004			

SERVICE MANUAL

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STEREO AMPLIFIER

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